




## Foundations of Mathematics and Pre-Calculus 10

### Sample Questions for Measurement

#### Instructions

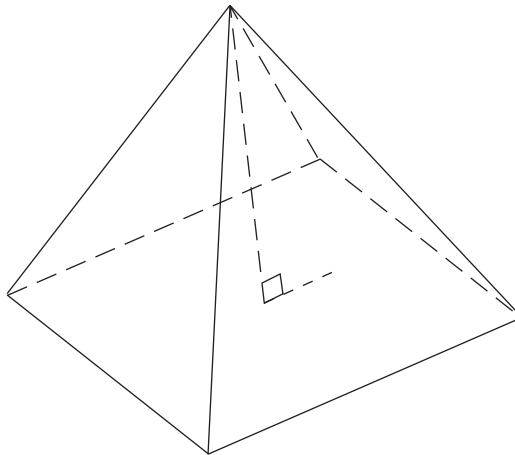
1. You may require a protractor and a ruler (metric and imperial) for paper versions of the questions.
2. You may use math tiles.
3. When using your calculator (scientific or approved graphing calculator):
  - use the programmed value of  $\pi$  rather than the approximation of 3.14.
  - round only in the final step of the solution.
4. Diagrams are not necessarily drawn to scale.
5. For questions marked with , do not use your calculator.



## PART A: MULTIPLE-CHOICE QUESTIONS

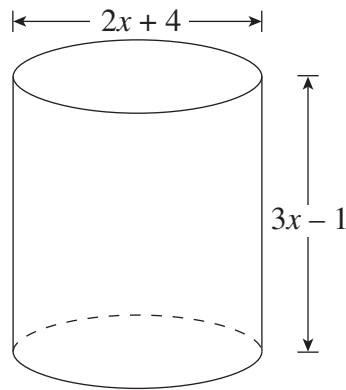


1. Which of the following examples is the best referent for one millimetre?
  - A. diameter of a penny
  - B. thickness of a fingernail
  - C. length of a five-dollar bill
  - D. distance from the floor to a door knob
  
2. Which expression could be used to calculate the surface area of the right square-based pyramid with a base length of 10 cm and a height of 12 cm?



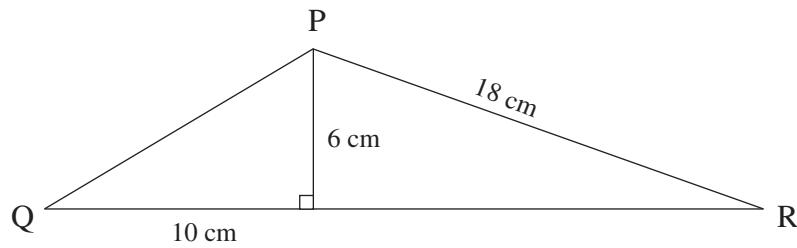
- A.  $SA = 2(10)(12) + (10)^2$
- B.  $SA = 2(10)(12) + (12)^2$
- C.  $SA = 2(10)(13) + (10)^2$
- D.  $SA = 2(10)(13) + (13)^2$

3. Which of the following expressions represents the volume of the cylinder below?



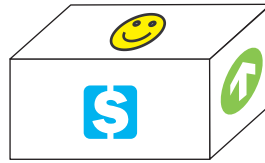
- A.  $V = \pi(6x^2 + 10x - 4)$
- B.  $V = \pi(3x^3 - x^2 + 12x - 4)$
- C.  $V = \pi(3x^3 + 11x^2 + 8x - 4)$
- D.  $V = \pi(12x^3 + 32x - 16)$

4. Determine the measure of  $\angle QPR$ .

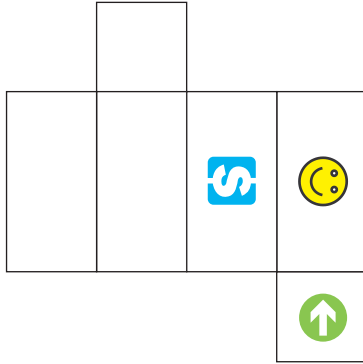


- A.  $59^\circ$
- B.  $71^\circ$
- C.  $102^\circ$
- D.  $130^\circ$

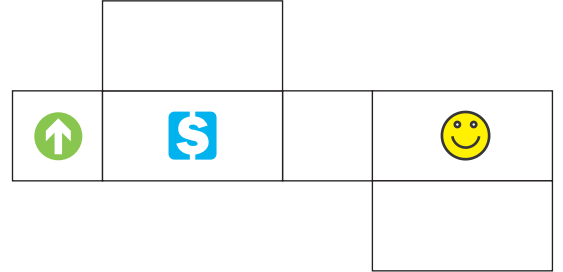
5. Which net diagram represents the prism below?



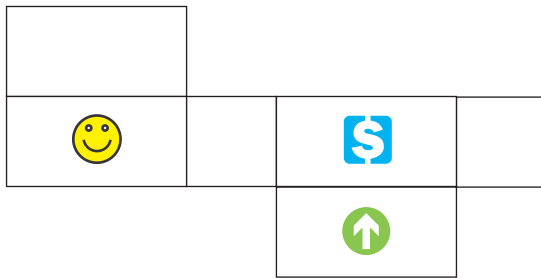
A.



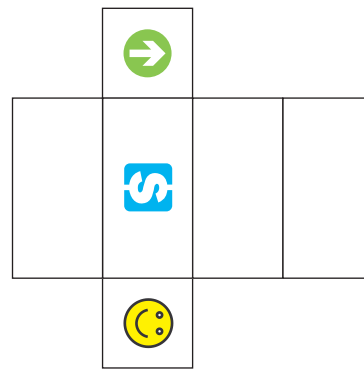
B.



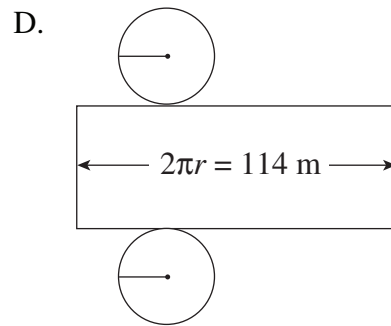
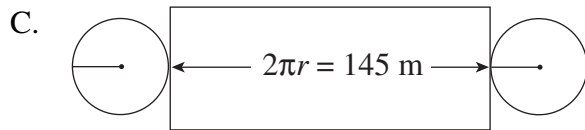
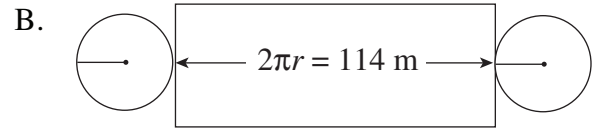
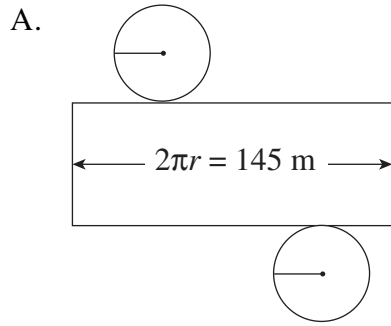
C.



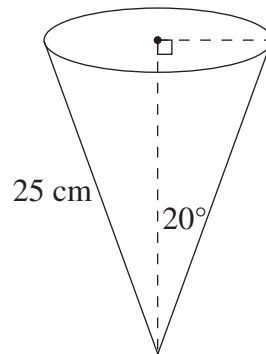
D.



6. Raj was asked to make a cylindrical tank with a lateral surface area of  $2622 \text{ m}^2$  and a height of 23 m. Which net diagram below would be correct for this cylinder?

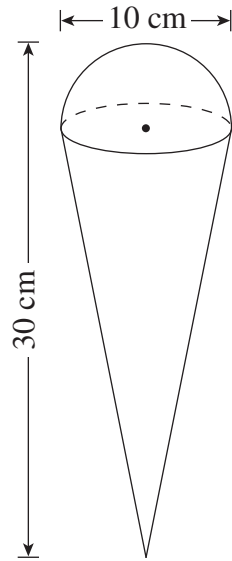


7. Calculate the volume of the right cone below.



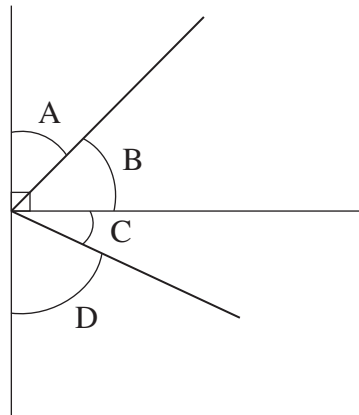
- A.  $210 \text{ cm}^3$
- B.  $1799 \text{ cm}^3$
- C.  $1914 \text{ cm}^3$
- D.  $2168 \text{ cm}^3$

8. Determine the surface area of the solid below.



- A.  $481 \text{ cm}^2$
- B.  $558 \text{ cm}^2$
- C.  $1414 \text{ cm}^2$
- D.  $2199 \text{ cm}^2$

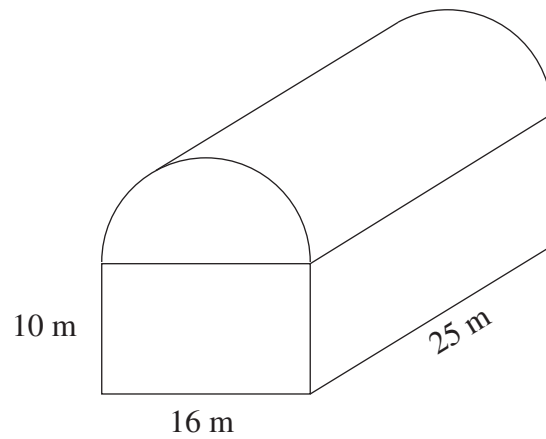
9. Which of the following angles is an angle of depression?



- A. A
- B. B
- C. C
- D. D

10. A cat on the ground is 50 m away from the base of a pole. An osprey's nest is on the top of the pole, which is 20 m tall. What is the measure of the angle of inclination from the cat to the osprey's nest?
- A.  $22^\circ$   
 B.  $24^\circ$   
 C.  $66^\circ$   
 D.  $68^\circ$

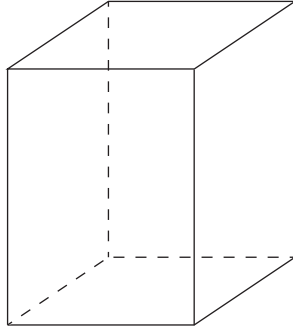
11. Calculate the volume of the shape below.



- A.  $6\,513\text{ m}^3$   
 B.  $9\,027\text{ m}^3$   
 C.  $14\,053\text{ m}^3$   
 D.  $24\,106\text{ m}^3$



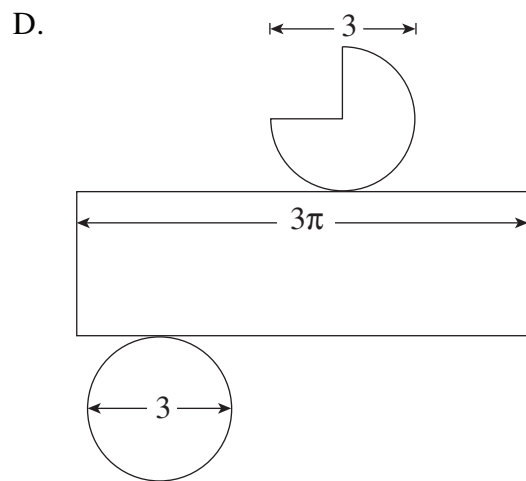
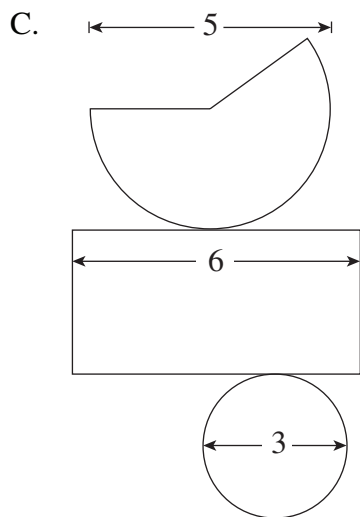
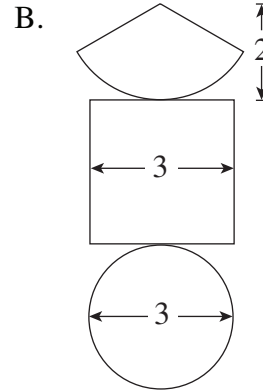
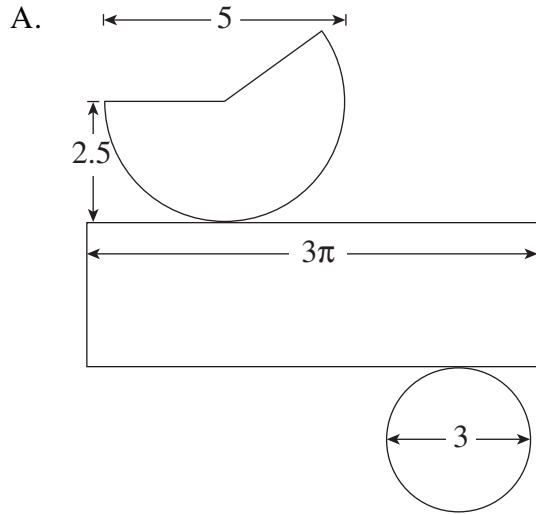
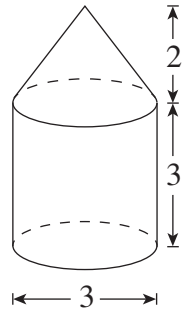
12. A wooden block is a square-based prism, as shown below:



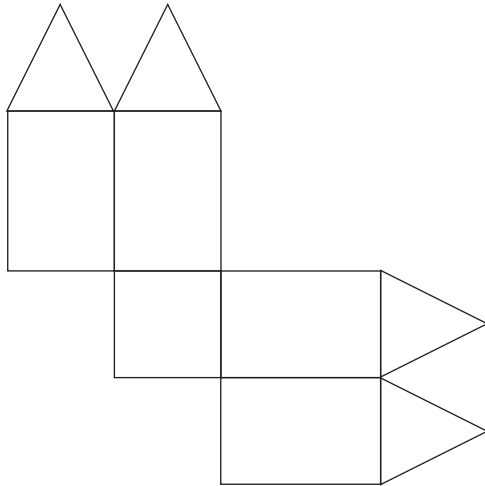
Given the base area is  $50 \text{ cm}^2$  and the height is  $12 \text{ cm}$ , what is its surface area?

- A.  $339 \text{ cm}^2$
- B.  $439 \text{ cm}^2$
- C.  $600 \text{ cm}^2$
- D.  $1300 \text{ cm}^2$

13. Which of the following net diagrams represents the figure below? Note: **all** diagrams drawn to scale.

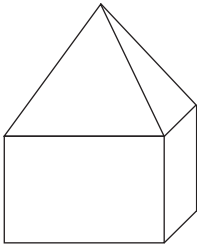


14. Which prism can be formed by the net below? Note: **all** diagrams drawn to scale.

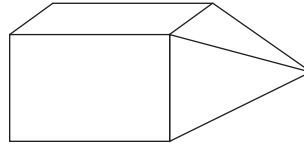


Note: **all** diagrams drawn to scale.

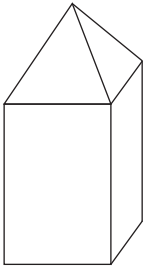
A.



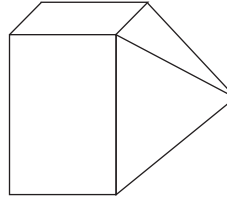
B.



C.



D.



## PART B: NUMERIC-RESPONSE QUESTIONS

15. The lateral surface area of a cylinder is  $1106 \text{ cm}^2$ . Given that the height is 11 cm, calculate the radius. Answer to the nearest cm.

**Record your answer neatly on the Answer Sheet.**